CLAIMS

1. An electrode column [10] for use in an arc furnace comprising an electrode mantel [13], an electrode [11] which is concentrically located in and movable in an axial direction relatively to the mantel [13], an electrode slipping arrangement [12] including a lower electrode slip clamp [32] which surrounds the electrode [11] and which is carried by a ring beam, an upper electrode slip clamp [30] around the electrode [11] which is spaced vertically from and movable relatively to the lower clamp [32], slipping cylinders [34] which are connected to and between both slipping clamps [30,32] and electrical load regulating cylinders [26] which are connected to act between the ring beam [24] and fixed structure above the furnace roof,

characterised in that the electrode column [10] includes at least one resiliently yieldable load resisting device [36] which is located between the upper slip clamp [30] and structure on the ring beam [24] and on which the electrode [11], when clamped only by the upper slip clamp [30] may totally be supported and means for measuring the load induced yield of the load resisting device [36].

2. An electrode column [10] as claimed in claim 1 wherein the or each load resisting device [36] is engaged with and located between the lower [32] and upper [30] electrode slip clamps.

3. An electrode column as claimed in claim 1 wherein the or each load resisting device is a compression spring [36].

4. A method of determining the length of an electrode [11] in an electrode column [10] as claimed in any one of the above claims in an active arc furnace

characterised in that the method includes the steps of releasing the lower electrode slip clamp [32] from the electrode [11], moving the electrode [11], in a down slip, relatively to the electrode column [10] mantel [13] by moving the upper slip clamp [30], which is clamped to the electrode [11], downwardly by means of the slipping cylinders [34] and or the gravity bias of the electrode [11], through the released lower slip clamp, measuring the force required to move the electrode [11] by means only of the engaged upper slipping clamp [30] against predetermined and comparable reaction forces acting against movement of the electrode [11] and computing these parameters to determine the mass and so the length of the electrode [11] relatively to the theoretical mass of the undamaged electrode at the time of movement.

5. A method as claimed in claim 4 including the steps of fully supporting the electrode [11] on the load resisting device [36] to provide a reference electrode [11] mass parameter prior to

moving the electrode [11] by means of the upper slip clamp [30] against an increasing bias of the load resisting device [36] with the electrode [11] mass support and movement forces being provided as electrode length reference parameters to the computer.

6. A method as claimed in claim 4 including the steps of first performing the down slip of the electrode through the released lower slip clamp [32] over a set slipping length and then, by means of the slipping cylinders [34], performing an upward slip of the electrode [11] through the released upper slip clamp [30] with a stroke length equivalent to that of the down slip and computing the electrode mass and slipping cylinder pressure parameters during each of the slips to calculate the effective length of the electrode.

7. A method as claimed in claim 4 including the step, during the downslip extension of the electrode [11] from the mantel [13] into the furnace material [42], of performing two down slips and one up slip and computing the electrode [11] mass and slipping cylinder [34] pressure parameters during one of the down slips and the up slip to calculate the effective length of the electrode.